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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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|-----------------|-------------|----------------------|---------------------|------------------|

10/689,084

10/21/2003

Jang-Hyoun Youm

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03/11/2005

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EXAMINER

MCCLOUD, RENATA D

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,084

Applicant(s)

YOUM ET AL.

Examiner

Renata McCloud

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/21/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2, 8, 14, 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims recite that there can be only one brake resistor, whereas the claims they depend from have already established that there must be more than one brake resistor.
3. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim is unclear. The last line of the claim is unclear.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1,7,10-13, 18, 22, 26-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Plunkett (US 4093900).

Claims 1, 10,11: a motor controller comprising an inverter (Fig. 1: 12) comprising a bridge circuit having a plurality of first and second switching circuit units (Col. 5: 20-28, the inverter has an upper and lower switching units); brake relays (Fig. 1: 52,54,56) short circuiting the motor windings; brake resistors (Fig. 1: 46,48,50) connected to the windings and consuming an overcurrent generated by the motor when the relays short the windings (Col. 6:26-37); and a switching controller (Fig. 1:34) turning on and off one of the first and second switching units provided in opposite ends of the inverter so that the overcurrent consumed by the brake resistors is changeable in proportion to a rotation speed of the motor (Col. 5:60-6:25; Col. 7:30-49).

Claim 7: a method comprising: braking the motor by short circuiting the windings and turning on and off the switching units provided in the inverter (Fig. 1:12 the inverter has an upper and lower switching units) so that overcurrent consumed by brake resistors is changeable according to the speed of the motor (Col. 5:60-6:25; Col. 7:30-49).

Claims 12, 13: a motor controller comprising a plurality of first and second switching circuit units (Fig. 1:12 the inverter has an upper and lower switching units); brake resistors (Fig. 1: 46,48,50) connected to the windings and consuming an overcurrent generated by the motor; and a controller (Fig. 1: 54) turning on and off one of the first and second switching units provided in opposite ends of the inverter so that the overcurrent consumed by the brake resistors is changeable in proportion to a rotation speed of the motor (Col. 5:60-6:25; Col. 7:30-49).

Claims 22, 26 and 27: a method comprising: supplying power (Fig. 1: 18) to the motor (Fig. 1: 10) by a plurality of first and second switching units (Fig. 1: 12 the inverter has an upper and lower switching units); short circuiting the windings by braking the motor; connecting brake resistors (Fig. 1: 46,48,50) to the windings; and controlling an overcurrent by and turning on and off the switching units provided in the inverter so that overcurrent consumed by brake resistors is changeable according to the speed of the motor (Col. 5:60-6:25; Col. 7:30-49).

Claim 28: a method comprising: supplying power (Fig. 1: 18) to the motor (Fig. 1:10) by a plurality of switching units (Fig. 1:12 the inverter has an upper and lower switching units); exhausting power from an overcurrent by controlling the switching units provided so that overcurrent consumed by brake resistors is changeable according to the speed of the motor (Col. 5:60-6:25; Col. 7:30-49).

Claim 29: a method comprising supplying power (Fig. 1: 18) to the motor (Fig. 1: 10); detecting a speed of the motor (Fig. 1: 38); braking the motor; consuming an overcurrent according to the speed of the motor when braking the motor (Col. 5:60-6:25; Col. 7:30-49).

Claim 18: brake relays (52,54,56) to short circuit the motor (10) by turning on when the motor brakes and to prevent the motor from rotating by an external force (col. 6:24-48)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2-6, 8,9,14-17,19-21,23-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Plunkett as applied to claims 1, 7, 10, 13, 22 above, and further in view of Youn et al (US 6369538).

Claims 2, 8,14, 23: Plunkett teaches the limitations of claims 1, 7, 13, 22.

Referring to claims 2, 8, 14, 23, Plunkett does not explicitly teach the overcurrent consumed is changed in proportion to the duty cycle of the switching units. Youn et al teach an overcurrent consumed is changed in proportion a duty cycle of the switching units bridge circuit comp (Col. 5:15-47). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Plunkett to change the overcurrent at taught by Youn et al. The advantage of this would be smooth braking.

Claims 3, 24: Plunkett and Youn et al teach the limitations of claims 2 and 23.

Referring to claims 3 and 24, Youn et al teach a speed detector (Fig. 2:205) detecting the motor speed, wherein the switching controller (Fig. 2:206) turns on and off the switching units (Fig. 2:203) so that the duty cycle (Fig. 5) of one of the switching units is in proportion to the speed of the motor (col.4: 35-56)

Claim 4: Plunkett teaches the limitations of claim 1. Referring to claim 4, Plunkett does not explicitly teach the switching units comprise a transistor and a diode in parallel. Youn et al teach the switching units comprise a transistor and a diode in parallel (Fig. 3). IT would have been obvious s to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Plunkett to use a transistor in parallel with a diode. The advantage of this would be the ability to freewheel the voltage.

Claims 5, 6, 17: Plunkett and Youn et al teach the limitations of claims 2,3,16. Referring to claims 5,6, and 17, Youn et al teach the switching units comprise a transistor and a diode in parallel (Fig. 3).

Claim 9, 15: Plunkett and Youn et al teach the limitations of claims 8 and 14. Referring to claims 9 and 15, Youn et al teach detecting the speed of the motor wherein turning on and off the switching units comprises turning on and off the switching units according to the duty cycled changed in proportion to the detected speed (col. 4:35-56)

Claim 16: Plunkett and Youn et al teach the limitations of claim 15. Referring to claim 16, Youn et al teach the switching units (Fig. 3) comprise first and second switching units (Fig. 3: upper and lower bridges) connected in parallel to the motor (Fig. 3: M), wherein the controller turns on and off the first and second switching units so that the duty cycle is in proportion to the rotation speed of the motor detected by the speed detecting part (col.4: 35-56).

Claim 19: Plunkett and Youn et al teach the limitations of claim 15. Referring to claim 19, Youn et al teach the speed detector transmits the detected speed to the

controller to control the switching units to turn on and off by the duty cycle changed in proportion to the speed (col.4: 35-56).

Claims 20, 25: Plunkett and Youn et al teach the limitations of claim 16.

Referring to claims 20 and 25, Plunkett teaches the overcurrent from the motor is shunted through the switching units and the overcurrent flowing is reduced through the brake resistors connected between the switching units when the switching units are on, and the overcurrent flows through the brake resistors and is prevented from flowing through the switching units when the switching units are off (Col. 5:60-6:25; Col. 7:30-49).

Claim 21: Plunkett and Youn et al teach the limitations of claim 16. Referring to claim 21, Plunkett teaches the when the overcurrent is generated, power from the motor is consumed in the brake resistor (Col. 5:60-6:25; Col. 7:30-49).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (571) 272-2069. The examiner can normally be reached on Mon.- Fri. from 8 am - 5pm.

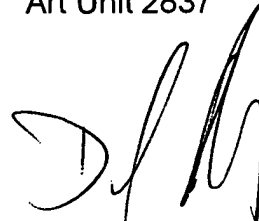
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571) 272-2800 ext. 4. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2837

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RDM

Renata McCloud
Examiner
Art Unit 2837

A handwritten signature in black ink, appearing to read 'DM', is positioned above the printed name of David Martin.

DAVID MARTIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800